

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Takuji YOSHIMOTO et al.

Application No.: 10/577,438

Confirmation No.: 3422

Filed: April 27, 2006

Art Unit: 1625

For: CHARGE-TRANSPORTING ORGANIC
MATERIAL CONTAINING COMPOUND
HAVING 1, 4-DITHIIN RING

Examiner: T. A. Solola

REQUEST FOR PRE-APPEAL BRIEF CONFERENCE

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Madam:

In response to the final Office Action dated April 1, 2009, the Appellant respectfully requests a pre-appeal brief conference. This request is being filed concurrently with a Notice of Appeal.

[I] Remarks

Appellant requests withdrawal of the rejection of record as being clearly erroneous in fact and in law for the reasons set forth below.

[II] Status of Claims

Claims 1, 3-6 and 12-15 are currently pending in the present application. Claims 7-11 are withdrawn from consideration as being directed to a non-elected invention.

[III] Rejection To Be Reviewed

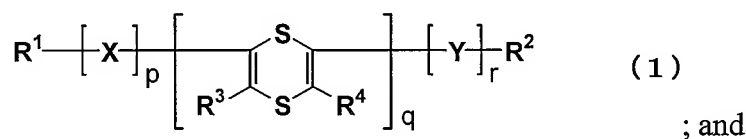
Claims 1-6, and 12-15 stand rejected under 35 U.S.C. § 102(b) as anticipated by Nakayama *et al.*, "*Preparation of α -Quinque- and α -Septithiophenes and their Positional*

Isomers,” Heterocycles, Vol. 26, No. 4, pp. 939-942 (1987) (hereinafter “Nakayama”). Appellant respectfully traverses the rejection.

We now turn to the present invention.

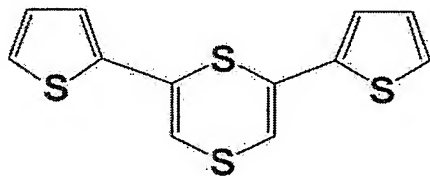
In the August 20, 2009 Amendment, Appellant amended claim 1 to recite that the composition further comprises the electron accepting dopant substance or the hole accepting dopant substance. As such, inventive claim 1 is drawn to a charge transport organic material having at least the following two Embodiments (A) and (B):

Embodiment (A) wherein the charge transport organic material comprises a combination of an electron accepting dopant substance, and a compound of the general formula (1) having a 1,4-dithiin ring

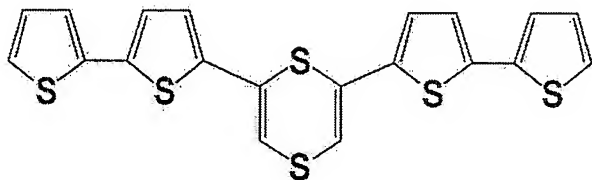


Embodiment (B) wherein the charge transport organic material comprises a combination of a hole accepting dopant substance, and the compound of formula (1).

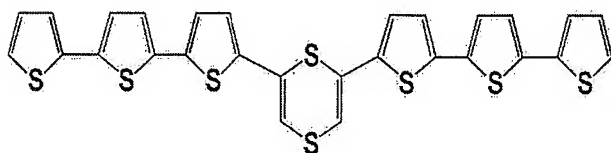
The Examiner has taken the position that Nakayama et al. disclose Compounds 4, 8 and 12 having a 1,4-dithiin ring which fall within the inventive formula (1). Compounds 4, 8 and 12 have the following structure:



Compound 4



Compound 8



Compound 12

The Examiner is aware that Nakayama teaches that these compounds are used as *intermediates* in the preparation of polythiophenes. Despite the fact that there is no teaching by Nakayama to include an electron accepting dopant substance or a hole accepting dopant substance with Compound 4, 8 or 12 of Nakayama, the Examiner maintains the rejection in the outstanding Advisory Action.

On page 3 of the Advisory Action, the Examiner states:

Electron accepting and hole accepting dopants are not applicant's inventions and are therefore, not patentable. Adding unpatentable subject matter to non-patentable invention is not patentable under the US patent practice. Applicant cannot claim the composition of a compound that is not applicant's invention. "Comprising" in the claims is an open ended term and therefore, the claims are still anticipated by the prior art.

This line of reasoning is not clear to Appellant, because Appellant is not claiming the electron accepting dopant substance or the hole accepting dopant substance by themselves. In other words, it is the combination of the compound of formula (1) with either the electron accepting dopant substance or the hole accepting dopant substance that is now being claimed.

In the context of anticipation, MPEP 2131 teaches that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference." (Citation omitted). As such, the issue is whether Nakayama teaches Embodiment (A) or Embodiment (B). Since there is no teaching or suggestion by Nakayama to include an electron accepting dopant substance or a hole accepting dopant substance with the compound of inventive formula (1) in combination, it can NOT be said that each and every element as set forth in the claim is found, either expressly or inherently described in Nakayama. As such, a *prima facie* case of anticipation can NOT be said to exist.

In the above-quoted passage from the Advisory Action, the Examiner notes that claim 1 includes the term "comprising" which is open-ended. Appellant agrees with the Examiner that the term "comprising" is open-ended. However, according to proper claim construction, instant claim 1 requires at least the combination of compound of formula (1) with the electron accepting dopant substance or at least the combination of compound of formula (1) with the hole accepting dopant substance. As such, for Nakayama to anticipate present claim 1, Nakayama must teach either the combination of compound of formula (1) with the electron accepting dopant substance or the combination of compound of formula (1) with the hole accepting dopant substance. Since Nakayama fails to teach either combination, the rejection is not tenable.

Furthermore, Nakayama discloses that "Electrochemical polymerization of 1 affords electroconductive crystalline doped polythiophene." (Cf. line 3, p.939, emphasis added). Therefore, Nakayama fails to teach that a compound having a 1,4-dithiin ring serves as an electron conductor. Also Nakayama fails to teach that the above compounds having a 1,4-dithiin ring are used for a charge transport material with a dopant.

Accordingly, the amended claim 1 has novelty and is not anticipated by Nakayama.

Moreover, the inventive 1,4-dithiin compounds of the present invention have solubility characteristics making them more favorable to work with than the polythiophene final products of Nakayama. As described in the description [0004] of the present specification, in non-substituted thiophene oligomers, the molecules having more than four subunits are mostly insoluble in every solvent. In particular, as shown in Comparative Example 1, a thiophene

pentamer was insoluble in DMAc. Furthermore, doped thiophene oligomers are generally more insoluble in organic solvents than non-doped thiophene oligomer.

On the other hand, as shown in Inventive Examples 1-5, the inventive compound having a 1,4-dithiin ring, even though it is doped with a dopant, is soluble in organic solvents.

In addition, as shown in Inventive Examples 6-9, the organic EL element having a thin film obtained from the varnish containing the inventive material emits light uniformly from an entire light-emitting face with no defects being observed. Those skilled in the art cannot foresee the solubility of the inventive material and the light-emitting characteristics of the inventive EL element from Nakayama who teaches that the compounds 4, 8 and 12 are used as intermediates in the preparation of polythiophenes.

In view of the fact that Nakayama fails to teach or suggest including an electron accepting dopant substance or a hole accepting dopant substance with compounds 4, 8 and 12, a *prima facie* case of anticipation cannot be said to exist. Appellant requests withdrawal of the rejection of record as being clearly erroneous in fact and in law for the reasons set forth below.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Garth M. Dahlen, Ph.D., Esq. Reg. No. 43,575 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: September 21, 2009

Respectfully submitted,

By  #43575

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